

7. A 28-year-old female with severe inflammatory disease of the bowel (Ileitis). Had previous surgery, was first seen by me when she was partially obstructed on a liquid diet, severe arthritis, unable to wear shoes and walking with great difficulty, and she also had erythema nodosum (an inflammatory disease of the skin) which was refractory to medical treatment including cortisone. She was to be placed on immunosuppressive therapy and surgery was planned at Mt. Sinai Hospital in New York. After one week on the Program, the inflammation subsided dramatically in the legs and she began to eat solid foods. After 3 months, all symptoms disappeared except for intermittent obstruction based on the mechanical scarring of the small intestine. At surgery, the involved intestine was removed, she is doing extremely well. Her initial heart rates were a resting heart rate of 100 to 110, with extreme hyper-reactivity on just standing to approximately 150. After the few months on the Program her resting heart rates were in the 60s with her maximum heart rate to 180.

8. A 65-year-old male with chronic viral hepatitis, whose initial heart rate maximum was 115 with recoveries down to the low 40s. After approximately one year on the program, his liver enzymes which were elevated returned close to normal. His depression, fatigue and weakness which made it difficult for him to leave his apartment, cleared and he was able to go back to skiing and playing tennis in a normal way. His heart rates ranged up to high 150s and recovered down to the 50s.

9. A 44-year-old male with severe chronic fatigue syndrome who was unable to work anymore. His heart rate range was 125 maximum, recovering down to the mid 40s. After 3 months on the Program his range is in the low 50s and maximum is 170. His chronic fatigue is about 80% improved and he has been able to return to work.

While there has been disclosed a therapeutic exercise program in accordance with the invention, many changes and modifications may be made thereon without departing from the spirit of the invention.

Thus while the invention has been described as a program to improve the condition of a patient having an abnormality reflected by a depressed heart state, individuals more or less free of abnormality may benefit from the program which will serve to enhance their mental and physical well-being and possibly prevent the occurrence of a chronic disease.

I claim:

1. A therapeutic exercise program for treating a patient having an abnormal condition indicated by a maximum heart pulse rate that deviates from a normal maximum rate and a resting heart pulse rate that deviates from a normal resting rate whereby the heart rate range is compromised, the program being carried out by the steps of:
 - 50 A. continuously monitoring the heart pulse rate of the patient in the course of the program as the patient exercises;
 - 55 B. subjecting the patient to a series of exercise-relaxation cycles in which in the course of each cycle the exercising patient expends a surge of energy causing his pulse rate to reach a peak value above said resting heart rate to a degree that depends on the patient's physical state, at which point the patient then relaxes and his heart rate because of a pendulum effect induced in the patient's heart, swings down from the peak value to a point below said resting heart rate to produce a spiked heart wave; and

C. continuing the program until the patient's maximum heart pulse rate and resting heart pulse rate approach those of an individual having a normal heart rate range and free from the abnormal condition.

2. A program as set forth in claim 1, in which at the outset of the program the initial resting pulse rate and the initial maximum pulse rate are measured to determine the existing range and flexibility extending between these rates, the program then being conducted to expand this range and flexibility. ⁵

3. A program as set forth in claim 2, in which in each cycle the surge raises the peak value above the initial maximum pulse rate, and the swing produces a resting rate below the initial resting rate. ¹⁰

4. A program as set forth in claim 2, in which the program is conducted under temporal conditions and for a duration which brings about a progressive rise in the maximum pulse rate attainable by the patient and expands his range and flexibility.

5. A program as set forth in claim 1, in which the heart waves produced by the series of exercise-relaxation cycles are digitized and fed into a computer which analyzes these waves.

6. A program as set forth in claim 1, in which the abnormal condition is a chronic disease.

7. A program as set forth in claim 1, in which the abnormal condition is a behavioral disorder.

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8. A computer readable medium containing a therapeutic exercise program for treating a patient having an abnormal condition indicated by a maximum heart pulse rate that deviates from a normal maximum rate and a resting heart pulse rate that deviates from a normal resting rate whereby the heart rate range is compromised, the program comprising:

5 A. continuously monitoring the heart pulse rate of the patient in the course of the program as the patient exercises;

10 B. subjecting the patient to a series of exercise-relaxation cycles in which in the course of each cycle the exercising patient expends a surge of energy causing his pulse rate to reach a peak value above said resting heart rate to a degree that depends on the patient's physical state, at which point the patient then relaxes and his heart rate because of a pendulum effect induced in the patient's heart, swings down from the peak value to a point below said resting heart rate to produce a spiked heart wave; and

15 C. continuing the program until the patient's maximum heart pulse rate and resting heart pulse rate approach those of an individual having a normal heart rate range and free from the abnormal condition.

20 9. The computer readable medium of claim 8, wherein at the outset of the program the initial resting pulse rate and the initial maximum pulse rate are measured to determine the existing range and flexibility 5 extending between these rates, the program then being conducted to expand this range and flexibility.

25 10. The computer readable medium of claim 9, in which in each cycle the surge raises the peak value above the initial maximum pulse rate, and the swing produces a resting rate below the initial resting rate.

11. The computer readable medium of claim 9, in which the program is conducted under temporal conditions and for a duration which brings about a progressive rise in the maximum pulse rate attainable by the patient and expands his range and flexibility.

5 12. The computer readable medium of claim 8, in which the heart waves produced by the series of exercise-relaxation cycles are digitized and fed into a computer which analyzes these waves.

13. The computer readable medium of claim 8, in which the abnormal condition is a chronic disease.

14. The computer readable medium of claim 8, in which the abnormal condition is a behavioral disorder.

15. A system for performing a therapeutic exercise program on a patient, wherein said program comprises a conditioning exercise session that itself comprises successive exercise-relaxation cycles, and wherein said patient has a heart pulse rate and an abnormal condition indicated by a maximum heart pulse rate that deviates from a normal maximum rate and a resting heart pulse rate that deviates from a normal resting rate whereby the heart rate range is compromised, said system comprising:

10 a heart beat monitor that monitors said heart pulse rate in the course of the program;
a heart beat rate display connected to said heart beat monitor, wherein said display displays said heart pulse rate during said program; and
a computer connected to at least said heart beat monitor programmed so that in the course of each cycle the exercising patient expends a surge of energy causing his pulse rate to reach a peak value above

20 said resting heart rate to a degree that depends on the patient's physical state, at which point the patient then relaxes and his heart rate because of a pendulum effect induced in the patient's heart, swings down from the peak value to a point below said resting heart rate to produce
25 a spiked heart wave, said program continuing until said maximum heart pulse rate and said resting heart pulse rate approach those of an individual having a normal heart rate range and free from the abnormal condition.

16. The system of claim 15, wherein at the outset of the program the initial resting pulse rate and the initial maximum pulse rate are measured to determine the existing range and flexibility extending between these rates, the program then being conducted to expand this range and flexibility.

17. The system of claim 16, in which in each cycle the surge raises the peak value above the initial maximum pulse rate, and the swing produces a resting rate below the initial resting rate.

18. The system of claim 16, in which the program is conducted under temporal conditions and for a duration which brings about a progressive rise in the maximum pulse rate attainable by the patient and expands his range and flexibility.

19. The system of claim 15, in which the heart waves produced by the series of exercise-relaxation cycles are digitized and fed into a computer which analyzes these waves.

20. The system of claim 15, in which the abnormal condition is a chronic disease.

21. The system of claim 15, in which the
abnormal condition is a behavioral disorder.